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sea relatively little sand, and most of that is brought at times of high water. The sea does not sort or carry away much of the sediment, so that the delta grows rapidly and layers of sandy silt corresponding to high stages of the river are separated by layers consisting of soft flocculated clay and other fine watery material.

The Tree as a Factor in Man's Adjustment to Hilly and Rocky Lands. By J. Russell Smith. Man's living depends upon plants, and plants upon the soil, requiring, in addition to fertility, heat, light, and moisture. American agriculture has added to these the fifth factor, tillage, which is artificial. By its topographic soil requirements, the plow becomes the limiting factor in production (other than the thin harvests supplied by forest and pasture) for a large proportion of our land that is fit in all respects for heavy plant growth. The tree crop growers of Majorca, Sicily and Corsica show us instructive methods of hill utilization whose results exceed the yields of wood producing forestry or pasture.

THE TOPOGRAPHIC MAP OF MEXICO

(Map facing p. 434.)

Mexico is one of the few Latin-American countries which is issuing a large-scale topographic map of its territory. The official title of the Mexican map is "Carta de la República Mexicana á la 100,000a" and, as the name implies, its scale is 1:100,000, or about 1.58 miles to the inch. The map is published by the Comisión Geográfico-Exploradora, which is under the joint jurisdiction of the Departments of Promotion (Fomento) and War. Two hundred sheets out of a proposed total of 1100 have been published so far (cf. footnote 3). These embrace mainly, as will be seen on the accompanying index map, the eastern part of the country (states of Nuevo Leon, Tamaulipas, San Luis Potosí, Vera Cruz, Puebla, Tlaxcala, part of Mexico, and the Distrito Federal) and certain sections in the north (central Sonora and northern Chihuahua).

The map is subdivided according to the rectangular system, *i. e.* each sheet is a rectangle whose sides do not coincide with parallels and meridians, the projection having been laid out for the whole map as a unit. The whole map is conceived to be divided into nine sheets on the scale of 1:2,000,000, numbered from 1 to 9 (heavy Arabic numerals in block lettering on the accompanying index map); each of these in turn into four sheets on the scale of 1:1,000,000, numbered consecutively from 1 to 24 in so far as they cover Mexican territory (smaller Arabic numerals in Roman lettering); each of these again into four sheets on the scale of 1:500,000, numbered from I to IV (Roman numerals); and, finally, each of these into twenty-five sheets on the scale of 1:100,000, designated by letter as shown on the diagram in the upper right hand corner of the index map. Except for those on the scale of 1:100,000, no sheets have been published, as such, of any of these series, as far as it has been possible to ascertain, although the scales of 1:500,000 and 1:2,000,000 are represented in other official maps, as referred to below. The published sheets on the scale of 1:100,000 are designated according to their position within the two next higher units of subdivision. Thus, the sheets containing Tampico and Vera Cruz are designated respectively 14–I–(Z) and 19–II–(S).

The area represented on each sheet measures 53 by 40 centimeters (20⅞ by 15¾ inches). Relief is represented by unnumbered contours in dark brown with a vertical interval of 50 meters (164 ft.), the elevation, in meters, of critical points being occasionally given in numerals in blue. Drainage and hydrography are in light blue, distinction in color being made, however, between perennial watercourses and dry river beds, the latter being shown by broken lines in brown. Towns, villages, ranches and single buildings are indicated by various symbols in red. Roads and trails are shown in yellow brown, distinction being made between four kinds. Railroads are shown in black, different symbols being used for standard and narrow gauge. Boundaries are also shown in black. All these symbols are explained in detail on a key sheet entitled "Reglamento de signos y caracteres." Every fifth meridian and parallel is drawn out and graduations for every minute are given on the border of the map. Longitude is reckoned from the eastern tower of the Cathedral in Mexico City (99°8′ 0.87″ W. of Greenwich). At the four corners of each sheet are given the designations of the adjoining sheets so far as published. On the lower margin of each sheet are printed: a list of all points on it and on adjoining sheets whose geographic coordinates have been determined; a diagram on the scale of 1:500,000 showing, in colored symbols corresponding to an adjoining list, by whom the various routes were traversed and the extent of previous surveys, if any; the names of the compilers and draftsmen of the sheet; the magnetic declination; and the date of publication. The sheets are printed from zinc plates.

While not based on surveys carried out according to the most refined methods the map fulfills its purpose very satisfactorily. At the beginning of its work the Comisión very wisely decided not to undertake a general triangulation in view of the extent of the country and the limited means at its disposal. Instead, a network is being established of points whose positions are determined astronomically—latitude by circummeridian altitudes, longitude by telegraph or, if not possible otherwise, by chronometer—leaving the intervening areas to be filled in by route traverses with compass and perambulator. Elevations are determined by barometer, the readings being made simultaneously with those of the central meteorological observatory at Mexico City or of temporary stations locally established for the purpose. The maximum errors have been found to be comparatively small: for latitude, half a second of an arc; for longitude, one-tenth of a second of time by telegraph and three-tenths by chronometer; for elevation, 15 meters.[1] Although the map is thus, strictly speaking, only a reconnaissance map, it is very accurate for its class.

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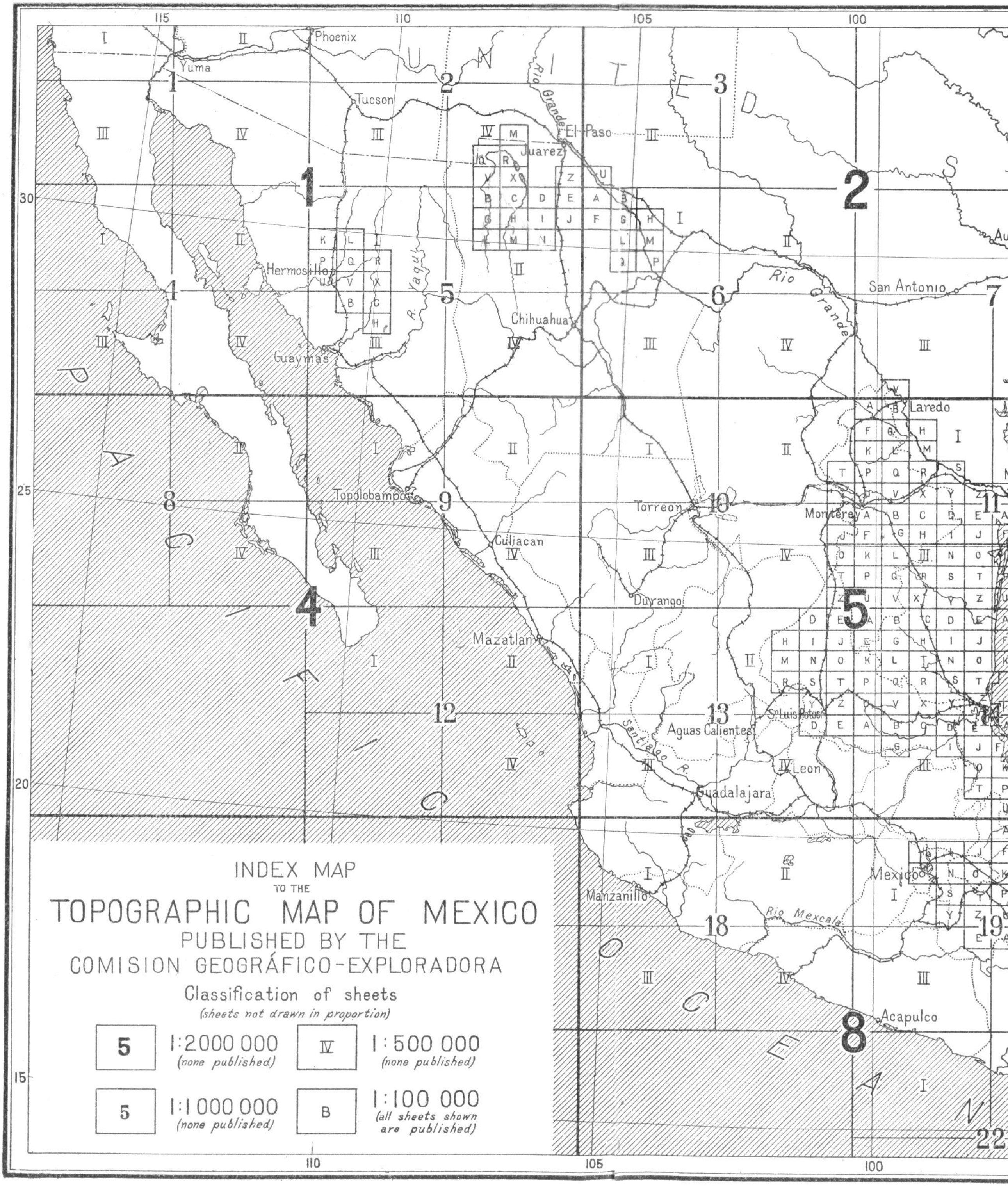
[1] This and other information about the work and organization of the Comisión will be found in the pamphlets issued by it on the occasion of the various expositions to which it sent exhibits, *e. g.* the International Geographical Congress in London, 1895, the International Exposition at Paris, 1900, and the Pan-American Exposition at Buffalo, 1901. These are entitled respectively:

(1) Geographical and Exploring Commission of the Mexican Republic: Catalogue of the Exhibits Presented by the Commission, with a Short Sketch of its Organization and Labors, by the Directing Engineer, Julio Alvarado, C.E. Dept. of Fomento, Colonization and Industry, Mexico, 1895. 67 pp. [In English and Spanish].

(2) Comisión Geográfico-Exploradora de la República Mexicana: Catálogo de los objetos que componen el contingente de la expresada Comisión, precedido de una reseña abreviada sobre su organización y trabajos, por el ingeniero Director Julio Alvarado. Oficina Tip. de la Secretaria de Fomento, México, 1900. 46 pp.

(3) The Geographical and Exploring Commission of the Mexican Republic: Sketch of Its Organization and Labors (title on cover: Some Facts regarding the Geographical and Exploring Commission of the United States of Mexico). By the Directing Engineer, Julio Alvarado, C.E. Printed by Gies & Co., Buffalo, N. Y., no date. 23 pp.

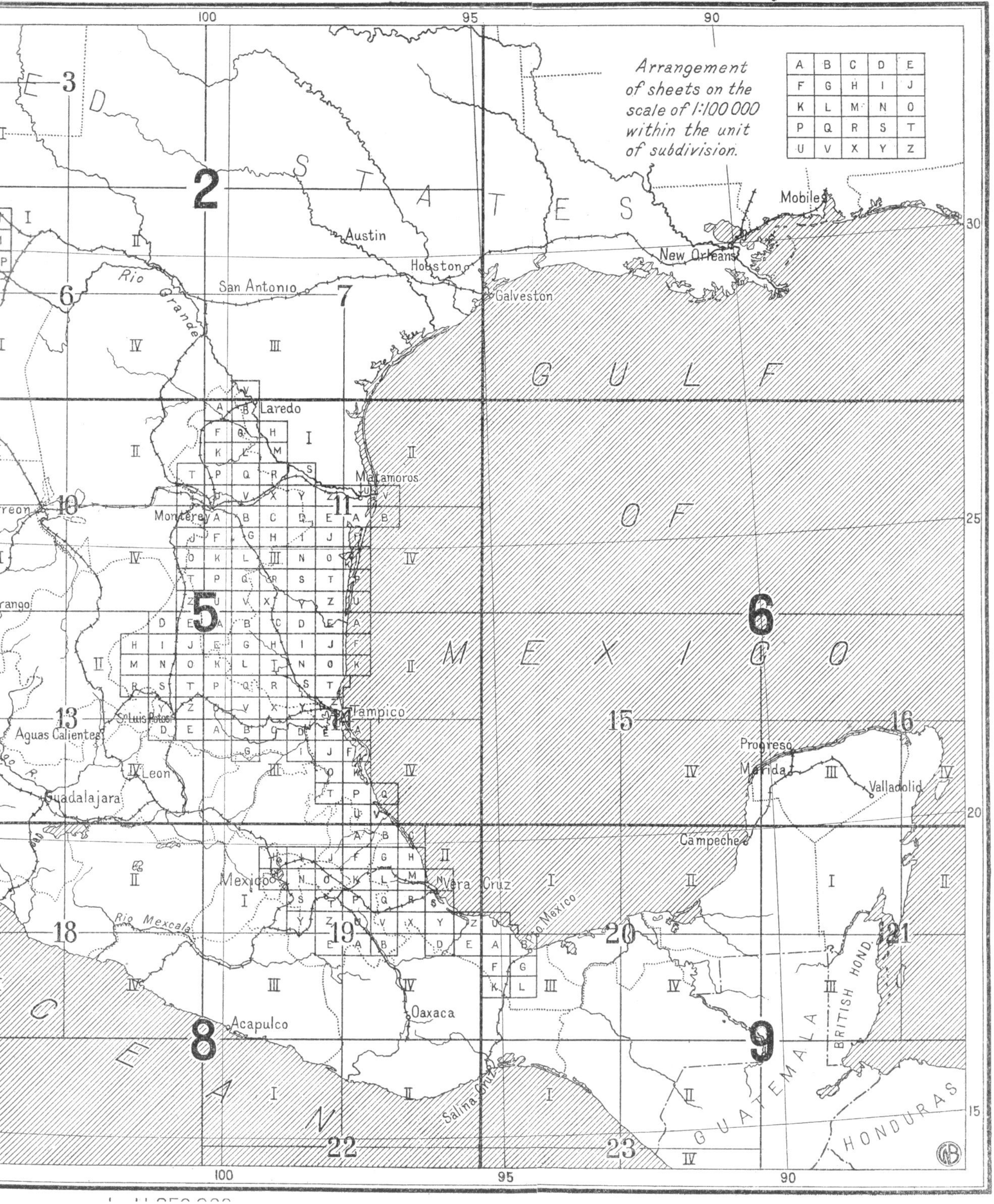


INDEX MAP
TO THE
TOPOGRAPHIC MAP OF MEXICO
PUBLISHED BY THE
COMISION GEOGRÁFICO-EXPLORADORA

Classification of sheets
(sheets not drawn in proportion)

5	1:2000 000 *(none published)*
Ⅳ	1:500 000 *(none published)*
5	1:1 000 000 *(none published)*
B	1:100 000 *(all sheets shown are published)*

Bull. Amer. Geogr. Soc., Vol. XLVI, No. 6, 1914



As previously stated, no other than the 1:100,000 sheets have been published, so far as known, of the contemplated four series of maps. With these sheets as a basis, however, maps have been prepared of certain states as units, some of which, in scale, coincide with the contemplated 1:500,000 series. These maps are published by the various states themselves, at whose instance they were prepared, although the compilation and engraving was done by the Comisión. As far as known these include the following: Nuevo Leon, 1:500,000, published in 1901 (relief in shading); Tamaulipas, 1:500,000; San Luis Potosí, 1:250,000, published in 1895 (relief in shading);[2] Vera Cruz, 1:250,000; Tlaxcala, 1:100,000, published in 1908 (relief in contours); Morelos, 1:100,000, published in 1910 (relief in contours). These last two maps consist simply of the assembled relevant portions of the 1:100,000 sheets. Surveys are in progress in the states of Hidalgo and Oaxaca which will result in the publication of maps of these states on the scales of 1:200,000 and 1:250,000 respectively. Besides these state maps the Comisión has published several special maps on larger scales, *viz.:* (1) Carta Corográfica del Distrito Federal construida en la Secretaría de Fomento por disposición del Secretario del Ramo, Ingeniero Manuel Fernández Leal, 1:50,000, published in 1899 (relief in hachures); (2) Atlas Topográfico de los Alrededores de Puebla, 1:20,000, in 9 sheets (relief in contours; a reduction with relief in hachures has also been published on the scale of 1:50,000); (3) Carta Topográfica de los Alrededores de Xalapa, 1:20,000 (two editions; relief in contours and in hachures; in manuscript only?). Finally the Comisión has published a general map of Mexico on the scale of 1:2,000,000 entitled "Carta General de la República Mexicana formada en la Secretaría de Fomento por disposición del Secretario del Ramo, Lic. Olegario Molina, 1910," whose scale might indicate some relation to the proposed sheet map on the same scale, although it is drawn and published as a unit. Relief is in red-brown shading, drainage in blue, towns whose positions have been astronomically determined, in red, others in black, roads in yellow brown and railroads in black.

The data here given are based partly on the maps themselves, partly on the pamphlets mentioned in footnotes 1 and 2 and partly on information kindly placed at the Society's disposal last year by the Director of the Comisión, Brig.-Gen. José Gonzalez Moreno, whose unfailing courtesy in answering inquiries it is a pleasure herewith to acknowledge. To him the Society is indebted for the gift of a valuable index map on the scale of 1:2,000,000 showing in hand coloring the sheets published of the 1:100,000 topographic map, on which the accompanying diagram is based[3]; also of the map of the environs of Pueblo and of the pamphlets previously mentioned. The Secretary of the Department of Promotion (Fomento) kindly presented a complete set of the 1:100,000 topographic sheets as well as the general map of Mexico, the map of the Distrito Federal and the maps of Tlaxcala and Morelos; and the governments of Nuevo León and Pueblo sent the maps of their respective states. The 1:100,000 topographic sheets and all the other maps mentioned in this notice, with the exception of the state maps of Vera Cruz, Tamaulipas and San Luis Potosí and the map of the environs of Xalapa, may be consulted at the Society's building.

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[2] *Cf.* Memoria presentada al gobierno del estado por el jefe de la Comisión Geográfico Exploradora, Coronel Julio Alvarado, relativa a los trabajos ejecutados para el levantamiento de la carta geográfica del estado de San Luis Potosí. 19 pp. San Luis Potosí, Tip. Escuela Industrial Militar, 1895.

[3] On the official index map, sheets 14-II-(P), 14-II-(U) and 20-I-(V) are indicated as having been published individually. Inasmuch as the small land area which each embraces is shown on the respective adjoining sheets 14-I-(T), 14-I-(Z) and 20-I-(U) and as these three sheets were not included in the complete set sent to the Society, it was assumed that they have not been published as such, and the accompanying diagram has been drawn accordingly. The proportion of published to proposed sheets given in the first paragraph above, however, includes all the sheets indicated on the official index map.

THE REVOLUTION AND THE MEXICAN PLATEAU

It is not generally realized that the revolutionary area in Mexico is far from the homes of the mass of the Mexican people and above all far below the level at which they live. It is a curiously ''upstairs'' country. Much the greater part of the people live on a plateau more than five thousand feet above the sea. This plateau area is outlined on the accompanying map with a dotted line. Its association with Mexican life is shown by putting on the map all the towns upwards of ten thousand people in 1910. It is evident at a glance that they are massed especially on the plateau. The population of the towns is roughly shown by the marks that represent them on the map, dots for ten thousand, bars for twenty, triangles for thirty, squares for forty and circles for fifty thousand. Sixty thousand is shown by a dot within a circle and so on, but the names are given of all towns with a population of over fifty thousand. Three cities at the high, southern end of the plateau have over a hundred thousand: Guadalajara (118,799), Mexico (470,659), and Puebla (101,214)).

The revolution has not yet got up to this plateau, holding only the northern country as far south as Torreon and some of the low country about Tampico in the east and south of the plateau border between Mexico and Guadalajara. The only cities of any size that the rebels hold as yet (May 7) are Chihuahua (39,061) and Monterey (81,006). Chihuahua is in the north, just off the plateau border and too far away from the Federal base for the Federals to hold, so they abandoned it. Monterey is also off the plateau, at only 2,000 ft., by far the largest city at so low a level. Seltillo (35,063), near it, is on the plateau, but this the rebels have gone by for the fighting near San Luis Potosí. Torreon is a small place. The population has not yet been reported for 1910, but ten years ago it was 13,800. The *area* held by the rebels is very large, perhaps a third of Mexican territory, but a great deal of it is uninhabited, with certainly less than one and a half of Mexico's fifteen million people, a bare tenth of the population. The task of the rebels is thus still mainly ahead of them.

The cities of forty thousand (the squares on the map), are, from north to south: Chihuahua (39,061), Saltillo (35,063), Aguas Calientes (44,800), Guanajuato (35,147), Querétaro (35,011), Pachuca (38,620); then, west of Mexico City, Morelia (39,160), close to the capital, Tacubaya (35,830), and, toward Vera Cruz, Orizaba (36,189). Oaxaca (37,469) stands isolated on a five thousand foot upland of its own farther south. The cities of thirty thousand (triangles) are: on the plateau southwest of Torreon, Durango (34,085);